RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: _10/563,601_

Source: _1Fwp_

Date Processed by STIC: _1/19/06_

ENTERED

RAW SEQUENCE LISTING   DATE: 01/19/2006
PATENT APPLICATION: US/10/563,601   TIME: 13:27:45

Input Set : E:\2003-005.txt
Output Set: N:\CRF4\01192006\J563601.raw

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   3 <110> APPLICANT: AKZO Nobel NV
   5 <120> TITLE OF INVENTION: Babesia vaccines
W--> 7 <130> FILE REFERENCE:
C--> 9 <140> CURRENT APPLICATION NUMBER: US/10/563,601
C--> 9 <141> CURRENT FILING DATE: 2006-01-06
   9 <160> NUMBER OF SEQ ID NOS: 19
  11 <170> SOFTWARE: PatentIn version 3.3
  13 <210> SEQ ID NO: 1
  14 <211> LENGTH: 852
  15 <212> TYPE: DNA
  16 <213> ORGANISM: Babesia canis
  19 <220> FEATURE:
  20 <221> NAME/KEY: CDS
  21 <222> LOCATION: (50)..(820)
  23 <400> SEQUENCE: 1
  24 agtcgatacc tccgagaata gtcttgtatt aatcctgtcg ctattcaca atg aag ggt    58
  25                                                          Met Lys Gly
  26                                                           1
  28 ttc ttc gga att att ttg tcc att att ttt gtt cgt gcc gtt agc tgc    106
  29 Phe Phe Gly Ile Ile Leu Ser Ile Ile Phe Val Arg Ala Val Ser Cys
  30     5                   10                  15
  32 act gag gat gag aaa agg gat agt gtc gtc gag ggc gct acg tcc gtt    154
  33 Thr Glu Asp Glu Lys Arg Asp Ser Val Val Glu Gly Ala Thr Ser Val
  34 20                  25                  30                  35
  36 gaa gcc agc tta aag gag cag atc gac tgg ctc gct gaa cgt tat tcc    202
  37 Glu Ala Ser Leu Lys Glu Gln Ile Asp Trp Leu Ala Glu Arg Tyr Ser
  38                 40                  45                  50
  40 gct gac ttg act aac aaa gac act tca aaa tgg aat acc gac gag aag    250
  41 Ala Asp Leu Thr Asn Lys Asp Thr Ser Lys Trp Asn Thr Asp Glu Lys
  42             55                  60                  65
  44 gtg aag gag ctg ttg aat gag aag gct gtt ggc ata gag tct cgc ctt    298
  45 Val Lys Glu Leu Leu Asn Glu Lys Ala Val Gly Ile Glu Ser Arg Leu
  46         70                  75                  80
  48 ctt gcc att gct aag gaa ttc cac aaa ttg aag tcc gtt ctg tgc acc    346
  49 Leu Ala Ile Ala Lys Glu Phe His Lys Leu Lys Ser Val Leu Cys Thr
  50     85                  90                  95
  52 ggc gtc aac gaa act ccc gct cat gtc gct aac agg gtg tca ccc gga    394
  53 Gly Val Asn Glu Thr Pro Ala His Val Ala Asn Arg Val Ser Pro Gly
  54 100                 105                 110                 115
  56 gac gcc atc tcc atg ctc tac gtg ctt tct atc act cac agg gaa ttg    442
  57 Asp Ala Ile Ser Met Leu Tyr Val Leu Ser Ile Thr His Arg Glu Leu
  58                 120                 125                 130
  60 tct agc ctt aag aat aag atc gat gaa tgg aag aag gtc aag gca tct    490
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RAW SEQUENCE LISTING   DATE: 01/19/2006
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Input Set : E:\2003-005.txt
Output Set: N:\CRF4\01192006\J563601.raw

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61 Ser Ser Leu Lys Asn Lys Ile Asp Glu Trp Lys Lys Val Lys Ala Ser
62             135             140             145
64 gaa gat ggc acc aaa gtg atc caa aat atc aag gac gac agg act aac      538
65 Glu Asp Gly Thr Lys Val Ile Gln Asn Ile Lys Asp Asp Arg Thr Asn
66             150             155             160
68 acc tgg ttc gtt gcc cat gga ttc aag gta gct gag ctc aac gat gtc      586
69 Thr Trp Phe Val Ala His Gly Phe Lys Val Ala Glu Leu Asn Asp Val
70     165             170             175
72 acc ctt gag aaa ctt gca aca gtg gtt aac gaa ttg gtg tcc cac aaa      634
73 Thr Leu Glu Lys Leu Ala Thr Val Val Asn Glu Leu Val Ser His Lys
74 180             185             190             195
76 gat atg att tac att aac gac gct atg aag caa aac gtt gat aaa tgg      682
77 Asp Met Ile Tyr Ile Asn Asp Ala Met Lys Gln Asn Val Asp Lys Trp
78             200             205             210
80 acc aag gag gag tct gaa aga ttg gcc atg atg gct gaa cag ggt ata      730
81 Thr Lys Glu Glu Ser Glu Arg Leu Ala Met Met Ala Glu Gln Gly Ile
82             215             220             225
84 tct gga gcc aag ggt aag aag gat gga ttc tca ttc gcc ggt ctt agt      778
85 Ser Gly Ala Lys Gly Lys Lys Asp Gly Phe Ser Phe Ala Gly Leu Ser
86             230             235             240
88 gtc atc agc ctt ctt gtt gcc gcc gtc gcg gtt gtg gtc taa            820
89 Val Ile Ser Leu Leu Val Ala Ala Val Ala Val Val Val
90     245             250             255
92 gaggttaagg atgactattt gtgggcgtaa tg                                  852
95 <210> SEQ ID NO: 2
96 <211> LENGTH: 256
97 <212> TYPE: PRT
98 <213> ORGANISM: Babesia canis
100 <400> SEQUENCE: 2
102 Met Lys Gly Phe Phe Gly Ile Ile Leu Ser Ile Ile Phe Val Arg Ala
103 1           5               10              15
106 Val Ser Cys Thr Glu Asp Glu Lys Arg Asp Ser Val Val Glu Gly Ala
107         20              25              30
110 Thr Ser Val Glu Ala Ser Leu Lys Glu Gln Ile Asp Trp Leu Ala Glu
111         35              40              45
114 Arg Tyr Ser Ala Asp Leu Thr Asn Lys Asp Thr Ser Lys Trp Asn Thr
115     50              55              60
118 Asp Glu Lys Val Lys Glu Leu Leu Asn Glu Lys Ala Val Gly Ile Glu
119 65              70              75              80
122 Ser Arg Leu Leu Ala Ile Ala Lys Glu Phe His Lys Leu Lys Ser Val
123             85              90              95
126 Leu Cys Thr Gly Val Asn Glu Thr Pro Ala His Val Ala Asn Arg Val
127             100             105             110
130 Ser Pro Gly Asp Ala Ile Ser Met Leu Tyr Val Leu Ser Ile Thr His
131         115             120             125
134 Arg Glu Leu Ser Ser Leu Lys Asn Lys Ile Asp Glu Trp Lys Lys Val
135     130             135             140
138 Lys Ala Ser Glu Asp Gly Thr Lys Val Ile Gln Asn Ile Lys Asp Asp
139 145             150             155             160
```

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142 Arg Thr Asn Thr Trp Phe Val Ala His Gly Phe Lys Val Ala Glu Leu
143                 165                 170                 175
146 Asn Asp Val Thr Leu Glu Lys Leu Ala Thr Val Val Asn Glu Leu Val
147                 180                 185                 190
150 Ser His Lys Asp Met Ile Tyr Ile Asn Asp Ala Met Lys Gln Asn Val
151             195                 200                 205
154 Asp Lys Trp Thr Lys Glu Glu Ser Glu Arg Leu Ala Met Met Ala Glu
155         210                 215                 220
158 Gln Gly Ile Ser Gly Ala Lys Gly Lys Lys Asp Gly Phe Ser Phe Ala
159 225                 230                 235                 240
162 Gly Leu Ser Val Ile Ser Leu Leu Val Ala Ala Val Ala Val Val Val
163                 245                 250                 255
166 <210> SEQ ID NO: 3
167 <211> LENGTH: 845
168 <212> TYPE: DNA
169 <213> ORGANISM: Babesia canis
172 <220> FEATURE:
173 <221> NAME/KEY: CDS
174 <222> LOCATION: (2)..(784)
176 <400> SEQUENCE: 3
177 a gtc gat acc tcc gag aat agt ctt gta tta atc ctg tcg cta ttc aca      49
178   Val Asp Thr Ser Glu Asn Ser Leu Val Leu Ile Leu Ser Leu Phe Thr
179   1               5                   10                  15
181 atg aag ggt ttc ttc gga att att ttg tct att att ttc gtt cgt gcc      97
182 Met Lys Gly Phe Phe Gly Ile Ile Leu Ser Ile Ile Phe Val Arg Ala
183             20                  25                  30
185 gtt agc tgc act gag gat gag aac agg gat agt gtc gtc gag ggc gct     145
186 Val Ser Cys Thr Glu Asp Glu Asn Arg Asp Ser Val Val Glu Gly Ala
187         35                  40                  45
189 acg tcc gtt gaa gcc agc tta aag gag cag atc gac tgg ctc gct gaa     193
190 Thr Ser Val Glu Ala Ser Leu Lys Glu Gln Ile Asp Trp Leu Ala Glu
191     50                  55                  60
193 cgt tat tcc gct gac ttg act aac aaa gac act tca aaa tgg aat acc     241
194 Arg Tyr Ser Ala Asp Leu Thr Asn Lys Asp Thr Ser Lys Trp Asn Thr
195 65                  70                  75                  80
197 gaa gag cag gtg aag gag ctg ttg aat gag aag gct gtt ggc ata gag     289
198 Glu Glu Gln Val Lys Glu Leu Leu Asn Glu Lys Ala Val Gly Ile Glu
199                 85                  90                  95
201 tct cgc ctt ctt gcc att gct aag gag ttc cac aaa ttg aag tcc gtt     337
202 Ser Arg Leu Leu Ala Ile Ala Lys Glu Phe His Lys Leu Lys Ser Val
203             100                 105                 110
205 ctg tgc acc ggc gtc aac gaa act ccc gct cat gtc gct aac agg gtg     385
206 Leu Cys Thr Gly Val Asn Glu Thr Pro Ala His Val Ala Asn Arg Val
207         115                 120                 125
209 tca ccc gga gac gcc atc tcc atg ctt tac gtg ctt cct aac act cac     433
210 Ser Pro Gly Asp Ala Ile Ser Met Leu Tyr Val Leu Pro Asn Thr His
211         130                 135                 140
213 agg gaa ttg tct agc ctt aag aat aag atc gat gaa tgg aag aag gtc     481
214 Arg Glu Leu Ser Ser Leu Lys Asn Lys Ile Asp Glu Trp Lys Lys Val
```

```
215 145                      150                    155                    160
217 aag gca tct gac aat ggc acc aat gtg atc aaa aat atc aag gac gac         529
218 Lys Ala Ser Asp Asn Gly Thr Asn Val Ile Lys Asn Ile Lys Asp Asp
219                     165                    170                    175
221 agg act aac acc tgg ttc gtt gcc cat gga ttc aag gta gct gag ctc         577
222 Arg Thr Asn Thr Trp Phe Val Ala His Gly Phe Lys Val Ala Glu Leu
223                     180                    185                    190
225 aac gat gta acc ctt gag aaa ctt gca aca gtg gtt aaa aaa ttg gtg         625
226 Asn Asp Val Thr Leu Glu Lys Leu Ala Thr Val Val Lys Lys Leu Val
227         195                    200                    205
229 tcc cac aaa gat atg aaa tac att aac aaa gtt atg aaa aaa tat ttt         673
230 Ser His Lys Asp Met Lys Tyr Ile Asn Lys Val Met Lys Lys Tyr Phe
231         210                    215                    220
233 gac agg cag aaa aag gag gct gaa aga ttg acc aaa aag gcc gag aag         721
234 Asp Arg Gln Lys Lys Glu Ala Glu Arg Leu Thr Lys Lys Ala Glu Lys
235 225                      230                    235                    240
237 ggt atg tct gga ggt aag tat aag gtg aaa ggt tat gca gcc ccc tct         769
238 Gly Met Ser Gly Gly Lys Tyr Lys Val Lys Gly Tyr Ala Ala Pro Ser
239                     245                    250                    255
241 act tgg atg cta tga ccatgcatac aagttgcaac taacaattaa cattttgaag       824
242 Thr Trp Met Leu
243                     260
245 cctgtactcc tcaatgagct c                                                 845
248 <210> SEQ ID NO: 4
249 <211> LENGTH: 260
250 <212> TYPE: PRT
251 <213> ORGANISM: Babesia canis
253 <400> SEQUENCE: 4
255 Val Asp Thr Ser Glu Asn Ser Leu Val Leu Ile Leu Ser Leu Phe Thr
256 1               5                   10                   15
259 Met Lys Gly Phe Phe Gly Ile Ile Leu Ser Ile Ile Phe Val Arg Ala
260                 20                  25                   30
263 Val Ser Cys Thr Glu Asp Glu Asn Arg Asp Ser Val Val Glu Gly Ala
264         35                  40                   45
267 Thr Ser Val Glu Ala Ser Leu Lys Glu Gln Ile Asp Trp Leu Ala Glu
268     50                  55                   60
271 Arg Tyr Ser Ala Asp Leu Thr Asn Lys Asp Thr Ser Lys Trp Asn Thr
272 65                  70                   75                   80
275 Glu Glu Gln Val Lys Glu Leu Leu Asn Glu Lys Ala Val Gly Ile Glu
276                 85                  90                   95
279 Ser Arg Leu Leu Ala Ile Ala Lys Glu Phe His Lys Leu Lys Ser Val
280                 100                 105                  110
283 Leu Cys Thr Gly Val Asn Glu Thr Pro Ala His Val Ala Asn Arg Val
284         115                 120                  125
287 Ser Pro Gly Asp Ala Ile Ser Met Leu Tyr Val Leu Pro Asn Thr His
288     130                 135                  140
291 Arg Glu Leu Ser Ser Leu Lys Asn Lys Ile Asp Glu Trp Lys Lys Val
292 145                 150                 155                  160
295 Lys Ala Ser Asp Asn Gly Thr Asn Val Ile Lys Asn Ile Lys Asp Asp
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RAW SEQUENCE LISTING   DATE: 01/19/2006
PATENT APPLICATION: US/10/563,601   TIME: 13:27:45

Input Set : E:\2003-005.txt
Output Set: N:\CRF4\01192006\J563601.raw

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296                   165                 170                  175
299 Arg Thr Asn Thr Trp Phe Val Ala His Gly Phe Lys Val Ala Glu Leu
300                   180                 185                  190
303 Asn Asp Val Thr Leu Glu Lys Leu Ala Thr Val Val Lys Lys Leu Val
304             195                 200                  205
307 Ser His Lys Asp Met Lys Tyr Ile Asn Lys Val Met Lys Lys Tyr Phe
308     210                 215                 220
311 Asp Arg Gln Lys Lys Glu Ala Glu Arg Leu Thr Lys Lys Ala Glu Lys
312 225                 230                 235                  240
315 Gly Met Ser Gly Gly Lys Tyr Lys Val Lys Gly Tyr Ala Ala Pro Ser
316                   245                 250                  255
319 Thr Trp Met Leu
320                   260
323 <210> SEQ ID NO: 5
324 <211> LENGTH: 21
325 <212> TYPE: DNA
326 <213> ORGANISM: Artificial
328 <220> FEATURE:
329 <223> OTHER INFORMATION: Primer
331 <400> SEQUENCE: 5
332 tgatgaagcc ggcaagaagg t                                          21
335 <210> SEQ ID NO: 6
336 <211> LENGTH: 22
337 <212> TYPE: DNA
338 <213> ORGANISM: Artificial
340 <220> FEATURE:
341 <223> OTHER INFORMATION: Primer
343 <400> SEQUENCE: 6
344 tacatgatac cgaattcaat gg                                         22
347 <210> SEQ ID NO: 7
348 <211> LENGTH: 27
349 <212> TYPE: DNA
350 <213> ORGANISM: Artificial
352 <220> FEATURE:
353 <223> OTHER INFORMATION: Primer
355 <400> SEQUENCE: 7
356 ttacatcgtt gagctcagct accttga                                   27
359 <210> SEQ ID NO: 8
360 <211> LENGTH: 22
361 <212> TYPE: DNA
362 <213> ORGANISM: Artificial
364 <220> FEATURE:
365 <223> OTHER INFORMATION: Primer
367 <400> SEQUENCE: 8
368 ccatggattc aaggtagctg ag                                         22
371 <210> SEQ ID NO: 9
372 <211> LENGTH: 21
373 <212> TYPE: DNA
374 <213> ORGANISM: Artificial
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RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 01/19/2006
PATENT APPLICATION: US/10/563,601   TIME: 13:27:46

Input Set : E:\2003-005.txt
Output Set: N:\CRF4\01192006\J563601.raw

Invalid <213> Response:
Use of "Artificial" only as "<213> Organism" response is incomplete,
per 1.823(b) of New Sequence Rules. Valid response is Artificial Sequence.

Seq#:5,6,7,8,9,10,11,12,13,14,15,16,17,18,19

VERIFICATION SUMMARY   DATE: 01/19/2006
PATENT APPLICATION: **US/10/563,601**   TIME: 13:27:46

Input Set : **E:\2003-005.txt**
Output Set: **N:\CRF4\01192006\J563601.raw**

L:7 M:201 W: Mandatory field data missing, <130> FILE REFERENCE
L:9 M:270 C: Current Application Number differs, Replaced Current Application No
L:9 M:271 C: Current Filing Date differs, Replaced Current Filing Date